TECHNICAL BOOK REVIEW INDEX

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ANTHONY A. MARTIN, *Editor*

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THE purpose of the Technical Book Review Index is primarily to identify reviews in current scientific, technical, and trade journals; secondarily, when feasible, to quote from these reviews. In the evaluation of scientific and technical books, reviews constitute the best existing source of information. The service of the Technical Book Review Index is thus in the field of evaluation, rather than in competition with existing publications which announce new and forthcoming books, list books by subjects, or supply bibliographic information. Each quotation immediately follows the name of the journal from which it is taken. Obviously, these brief extracts, detached from the context, must not be accepted as conclusive. Except for the correction of obvious errors, the bibliographic information is as given in the reviews. It is, therefore, in many cases incomplete and in some cases probably inaccurate.

Amick, Charles L.

Fluorescent lighting manual. Ed.3. 416p. 1960. McGraw, New York, $12.50.

Electrical South, March 1961, p.124. ⅔ col.

"First appeared just a short time after fluorescent lamps were introduced commercially . . . Basically, it retains a clear, simple treatment, covering the principles and procedures for calculating illuminating requirements, the design of luminaires and auxiliary equipment, and practical methods to use in maintaining and repairing all parts of any fluorescent lighting system."

Street engineering, March 1961, p.34. 8 l.

"A practical guide to design, installation and repair of fluorescent lighting systems, up-dated and revised to bring it abreast of modern practice. Also included, as an aid to good lighting, are current footcandle recommendations of the Illuminating Engineering Society, charts, tables and other data."

Babikov, O. I.

Ultrasonics and its industrial applications; translated from the Russian. 224p. 1960. Consultants Bureau, New York, $9.75.

American machinist/metalworking manufacturing, March 6, 1961, p.168. ⅔ col.

"The chapter headings indicate that the book covers the subject as fully as possible—especially in a fairly modest number of pages. The general theory of ultrasonics is followed by material on how the vibration is generated, pulsing, flaw detection, inspection, machining, soldering and plating, then cleaning and metallurgical effects—the final chapter on how metal structure can be improved with ultrasonic treatment. Comparing this and a current US book on ultrasonics shows that the state of the art is about the same in the two countries. The only major difference between the two books . . . is that the US text tends to be more specific, the Russian a bit more theoretical." *C. D. E.*

Corrosion, Feb. 1961, p.34. ⅓ col.

"Included are propagation and absorption of ultrasound, including concept of oscillations, velocity of sound, reflection, cavitation and visual observation; Generation considerations include mechanical, magnetostriction and piezoelectric effects; pulse methods for ultrasonic flaw detection consider circuits, parameters, determining sizes of defects, quality control, examples of application; Ultrasonic flaw detection with undampened oscillations covers the shadow method, examples of shadow method applications; resonance method with examples . . . Other chapters are headed machining of hard and brittle materials, aluminum soldering and plating, ultrasonic cleaning and metallurgical effects of ultrasonic processing."

Cutting tool engineering, March 1961, p.33. ⅔ col.

"Although this volume covers recent Russian advances in the ultrasonics field, its scope is said to be universal . . . Should serve as an aid to all who are interested in the industrial applications of ultrasound. To date, engineers in this field have relied primarily on two books: 'Ultraschall' by Bergmann (1954) and 'Ultrasonic Physics' by Richardson (1952). Neither of those works deals in any detail with the requirements of industry . . . A convenient reference for all technicians working in industrial research, metallurgy, acoustics, and the many related fields of physics and chemistry."

Baghdady, Elie J., ed.

Lectures on communication system theory. 617p. 1960. McGraw, New York, $12.50.

Electrical design news, March 1961, p.116. ¾ col.

"The outgrowth of a set of notes for a special summer program on 'Reliable Long-Range Radio Communication' offered at M.I.T. in 1959 . . . The original notes are included, most of which were rewritten completely with large amounts of added material. The 18 contributors include well-known experts such

as Peter Elias and R. M. Fano. Emphasis throughout . . . is on tutorial presentation but almost every chapter contains some ideas not previously published or which were developed especially in the writing of this book . . . All of the chapters are liberally supplied with references for further study."

Baker, Robert M. L., jr., & **Makemson,** M. W.

Introduction to astrodynamics. 339p. 1960. Academic Press, New York, $7.50.

ARS journal, Feb. 1961, p.271. ¼ col.

"Partially based on an intensive summer course given by Dr. Baker, which is derived from a course initiated by Dr. Samuel Herrick in 1946 . . . Directed particularly to the engineer or nonastronomer. In this regard, this work is meant to serve both as a brief introduction to the history, nomenclature and practical application of astrodynamics and as a key or handbook of specific astrodynamic techniques."

Ballentyne, D. W. G., & **Walker,** L. E. Q.

Dictionary of named effects and laws in chemistry, physics and mathematics. Ed.2. 234p. 1961. Macmillan, New York, $6.

Chemical age, Feb. 25, 1961, p.328. ½ col.

"The authors have set themselves an impossible task in attempting to compile a dictionary of this type in less than 250 pages, which only allow for about 1,500 entries. They include named chemical reactions and their difficulties are neatly exposed by a book recently noticed in these columns which lists 739 such reactions. A quick check reveals many omissions such as Born-Oppenheimer approximation, Russell-Saunders coupling, Hund coupling, Jahn-Teller effect, Einstein law of photochemical equivalence . . . First published in 1958 and the fact that it has been revised and republished within three years indicates considerable sales. It is not easy to guess who the original purchasers were."

Bardell, Philip Raymond.

Magnetic materials in the electrical industry. Ed.2. 320p. 1961. Macdonald & Co., London, 32s. 6d.

Electrical journal, Feb. 17, 1961, p.428. ½ col.

"Primarily intended for senior students in physics and electrical engineering as well as for physicists and engineers in industry and its major aim is to link the properties of materials with their applications . . . Scientific principles and engineering practice are effectively related in this book in a way which displays the first-hand knowledge of the author and a rare gift for lucidity of exposition which will be welcomed by students and specialists alike."

Electrical review, March 10, 1961, p.439. ⅜ col.

"The author's aims, in bridging the gap between theoretical treatises and handbooks for the practical engineer, are entirely praiseworthy . . . [His] objective has been well achieved, and the new edition . . . is therefore welcome, as it brings up to date and supplements, still in a volume of manageable proportions, very extensive and authoritative information on both theoretical and practical aspects. The chapter on new applications of ferrites, and the extension to the chapter on magnetic recording, are valuable additions . . . For advanced students and other readers with general interests, the treatment is excellent; it is well assisted by a pleasant and straightforward style of writing, together with copious illustrations, diagrams, and tables of properties." *C. J. S.*

Barein, Kurt, ed.

Materialfluss in Giessereien. pt.3. Giesserei Verlag, Düsseldorf, Germany, DM 10.

Foundry trade journal, Feb. 23, 1961, p.248. ⅜ col.

"A creditable third volume of a comprehensive work dealing with material movement in the foundry . . . Reports the results of a critical and comparative survey of materials-handling and movement in 23 foundries—five malleable-iron foundries, 14 grey-iron foundries and four steel foundries . . . Surveys of this kind are always interesting, but unfortunately the tendency to condense a complex number of variables into a few concise figures seems to be universally irresistible. One is apt to forget that 'situations alter cases'. This remark in no way detracts from the value of the work, which has been very well carried out . . . Should be of interest to any foundryman, but the reader would be wise not to apply the conclusions too liberally." *A. A. Timmins.*

Barnaby, K. C.

Basic naval architecture. Ed.3, revised. 472p. 1960. DeGraff, New York, $10.

Ship & boat builder and marine trader, March 1961, p.87. ⅜ col.

"Emphasis on the practical as opposed to the purely theoretical aspect of design is continued in this new edition. For example, the speed and power curves for small craft, already a valuable feature, have now been extended to cover waterline lengths up to 100 ft. There is also a table of new friction coefficients. Much of the new material will be of particular interest to small craft designers: apart from the speed and power curves already mentioned, there are articles on super-cavitating propellers, hydrofoil boats and plastic materials for boat building . . . Mr. Barnaby's affection for small ships is very much in evidence throughout the book."

Shipbuilder and marine engine-builder, Feb. 1961, p.136. ¼ col.

"A comprehensive survey of the present state of knowledge in this branch of architecture, [and] revises some of the information given in the editions of 1949 and 1954, in addition to providing a wealth of new material . . . Major textual corrections . . . have been made necessary by the revision of the propelling power allowance in the tonnage regulations, and the adoption of a standard Conference friction 'line'. A number of small revisions and corrections have also been made."

Bayet, Michel.

Physique nucléaire. 404p. 1960. Masson, Paris, 65 N. F.

Physics today, Feb. 1961, p.60, 62. ⅜ col.

"These appear to be the notes worked out for a specific course by a conscientious physicist

who is not professionally familiar with nuclear physics. The level is roughly that of a senior or first-year graduate course . . . There are a number of criticisms that can be made: much of the theoretical introduction is irrelevant in content and level of presentation to the remainder of the book, although it may have suited the needs of a particular course; the author does not show a deep understanding of the relative importance of various topics . . . May be of some use to exclusively French-reading physics students, although Halliday's excellent text has been translated into French. However, the book cannot be recommended to anyone who can read English." *Fay Ajzenberg-Selove.*

Beljankin, D. S., and others.

Technische Petrographie von Erzeugnissen der Feuerfest-, Feinkeramik- und Bindemittelindustrie; translated from the Russian by Johannes Winkler. 455p. VEB Verlag Technik, Berlin.

American mineralogist, Jan.-Feb. 1961, p.235. 1⅔ p.

"By no means a common text book; it does not give any instructions for the use of the petrographic microscope or of the techniques of the examination of minerals in polished sections . . . A mine of wealth for all investigators who wish to compare their observations in applied mineral microscopy with the data collected by a master in this art. Beyond that, the book is an indispensable source of information on the not always easily available Russian literature of the last four decades in the fields of microscopic investigation of the constitution of ceramic products. The bibliographic collection of this literature . . . is practically unique . . . A first-class reference." *W. Eitel.*

Benedikt, Otto V.

The autodyne; a new electrical machine. Ed.2, translated from the Hungarian by G. Téglás. 193p. 1960. Pergamon, New York, $10.

Engineers' digest, Feb. 1961, p.26. ½ col.

"As Professor Tustin . . . points out in his preface . . . the Autodyne is a novel machine which 'is a very distinctive new member of the broad family of rotary amplifiers. It has the mark of all true inventions—an essential simplicity. It springs from the union of a firm grasp of the mode of operation of a rotary converter, with a lively appreciation of the possibilities of "feedback" and gives us, with a single machine, a means to obtain control of any quantity that can be made to depend on a direct current, using the ordinary fixed frequency a.c. power supply as the source of energy. There is no doubt that the basic idea is capable of many variants and of further developments' . . . This excellent book, dealing as it does with a new machine of considerable industrial potential, will undoubtedly prove of exceptional interest and value to all electrical engineers and scientists."

Journal of the Institution of Electrical Engineers, Feb. 1961, p.114. ⅝ col.

"This work is unusual in that it is more akin to a scientific paper than a textbook. It introduces, develops and describes applications of a new machine which has apparently not been the subject of earlier treatment in scientific journals. Its appeal is mainly to post-graduate students, teachers, and industrial personnel specifically interested in developing this new type of machine." *F. C. Williams.*

Mining, electrical & mechanical engineer, Feb. 1961, p.288. ⅘ col.

"This valuable work leaves no doubt about the numerous possibilities of the new machine or that the principles propounded will be a preface to many further developments. The autodyne's ability to operate with smaller losses, higher stability, exceptional speed of response, to provide power factor correction and maintain automatically any electrical quantity, will attract the attention of mining-electrical engineers. They will readily appreciate the possibilities of applying the autodyne to the control of electric winders where it may be expected to enhance the efficiency and safety of these important installations." *T. M. M.*

Bijl, Hilde Kallmann, ed.

Space research; proceedings of the first international space science symposium, Nice, January 11-16, 1960. 1195p. 1960. Interscience Publishers, New York, $24.

Nature, Feb. 4, 1961, p.346. ⅓ col.

"The First International Space Science Symposium was held at Nice in January 1960, under the auspices of the Committee on Space Research. The volume under review thus has a historic character as well as being an exceptionally well-edited proceedings of the symposium printed and bound to the same high standard . . . The 100 papers cover mostly the two years of space research from the launching of the first artificial satellite to the time of the conference. Since another symposium is planned by the committee for next spring, there can be little doubt that this volume is just the beginning of an important series." *R. L. F. Boyd.*

Proceedings of the IRE, March 1961, p.691. 1 col.

"The Symposium brought together 'space' scientists from all countries active in upper atmosphere and space research . . . The subjects discussed were limited to the earth's atmosphere, the ionosphere, tracking and telemetry, solar radiation, cosmic radiation, interplanetary dust, and the characteristics of the moon and planets . . . The editing of the manuscripts is exceptionally good, as is the printing and art work." *G. E. Mueller.*

Science, March 10, 1961, p.697. ⅜ col.

"It is unquestionably a unique occurrence in the history of science when a new field can have most, if not all, of the pertinent observations collected in one volume at so early a stage in its development. The program committee responsible for the choice of papers given at the meeting is to be congratulated on its able decisions in selecting the contributors and in the complete and thorough coverage of the observational material made available." *Ludwig Katz.*

Bladergroen, Willem.

Problems in photosynthesis. 198p. 1960. C. C. Thomas, Springfield, Ill., $10.50.

New scientist, Feb. 9, 1961, p.351. ½ col.

"Research in photosynthesis . . . has given rise to a series of spirited conflicts, which are still being fought, between O. Warburg and

All Comers. There is no doubt at all which side Dr Bladergroen supports; this book deals largely with details of the techniques and primary data of Warburg's experiments, and only summarily with other people's work. Unfortunately Dr Bladergroen does his case great harm by going to extremes in praising Warburg and confounding his adversaries . . . Can hardly be recommended to anyone but the specialist able to put it into the context of current research . . . Exceptionally well produced, but far too expensive." *J. Edelman.*

Bruinsma, A. H.

Practical robot circuits. 125p. 1960. Macmillan, New York, $3.95.

Control engineering, March 1961, p.217. ⅛ col.

"Two demonstration-model robot systems are described here. One resembles a dog, can 'see' and 'hear' in stereo with photoelectric cells and microphones, 'feel' objects and temperatures with microswitches and negative temperature coefficient resistors, move about, and is equipped with acoustic radar. The other is stationary, and is designed to play tic tac toe. Besides making interesting reading, this book is a source of ideas for solving the more ordinary problems of robot circuitry."

Burbidge, G. R., and others.

Die Entstehung von Sternen durch Kondensation diffuser Materie. 330p. 1960. Springer, Berlin, DM 38.

Proceedings of the Physical Society, Jan. 1, 1961, p.220. ½ p.

"The volume under review . . . publishes three essays which each gained a prize in a special competition. A great deal of material has been collected very industriously by the prize winners, and the volume is most useful in that it presents a convenient summary of contemporary views on the subject . . . Will be read only as long as people care what astrophysicists thought in 1958. For all this, the reviewer is very glad to possess the book and expects to use it frequently. There is no doubt about the enormous contemporary importance of the topics which the essayists report." *R. V. D. R. Woolley.*

Burlant, William J., & **Hoffman,** A. S.

Block and graft polymers. 166p. 1961. Reinhold, New York, $7.95.

Canadian chemical processing, Feb. 1961, p.98. ⅛ col.

"The authors present a qualitative summary of the methods used to prepare block and graft polymers and include all that is known of the structures and properties of these materials . . . Also contains a discussion on use of ionising radiation to initiate the grafting reaction, preparation and properties of stereoblock polymers, grafts to poly-olefins, and the latest studies on the structure of industrially important rubber grafts."

Chemical age, March 11, 1961, p.414. ⅜ col.

"The subject of block and graft polymers is of very recent growth. This is clearly demonstrated by the references . . . which are almost exclusively culled from the literature of the late fifties. The subject is also of great industrial interest, but to this the references are no guide. This can be attributed to the delay in issue of patents . . . Should be regarded not as a treatise but a progress report. There are very few sections that can be regarded as the last word on the subject. No doubt the book will be very welcome to the many scientists, who in the next few years will do research on these polymers, as a clear and stimulating account of the state of the art—for such it clearly is at present."

Rubber age, March 1961, p.1046, 1048. ⅛ col.

"Summarizes, qualitatively, the reactions and experimental techniques used to initiate block and graft polymerization . . . Also discusses what is known of the structures of the products and their physical properties . . . Purpose is to suggest to scientists and engineers that 'molecular engineering' of polymers—the synthesis of macromolecules of known configuration and physical characteristics—is indeed possible. The nine chapters cover nomenclature, separation and isolation of block and graft polymers, chain transfer reactions, radical attack of unsaturated backbones in natural and synthetic rubber, reactions of macromolecules containing functional groups, photolytic reactions, ionizing radiation, mechanical degradation, and stereoblock polymers."

Candee, Allan H.

Introduction to the kinematic geometry of gear teeth. 204p. 1961. Chilton Co., Philadelphia, $12.50.

Machine design, March 16, 1961, p.243. ⅛ col.

"Principles of gear design are presented with emphasis on gear-tooth contact. Only tooth contact between profile curves in cross sections of teeth is considered. Discussion applies mainly to gears on parallel axes. A graphical method is utilized to solve problems. It consists of geometrical constructions by lines and points combined with numerical calculations of distances and angles. Concepts of instant centers and centers of curvature are stressed."

Childers, Norman Franklin.

Modern fruit science. 893p. 1961. Horticultural Publications, Rutgers University, New Brunswick, N. J., $7.50.

Agricultural chemicals, Feb. 1961, p.83. ⅝ col.

"Although . . . intended primarily for undergraduate use, it contains enough practical information in easy-to-read form that it should be of value also to the grower of fruits and nuts who desires to keep abreast of trends and research developments. A special effort obviously has been made to present the subject matter in an attractive, logical manner. Numerous photographs and charts illustrate the text, and the appendix provides the reader with detailed information that sometimes cannot be found in other books, plus an additional set of technical references on key subjects. Apples . . . receive the lion's share of attention, but such other fruits as pears, quince, peaches, apricots, cherries, strawberries, and grapes are thoroughly covered; as are edible nuts and minor tree crops."

Collin, Robert E.

Field theory of guided waves. 551p. 1960. McGraw, New York, $16.50.

Electrical journal, Feb. 24, 1961, p.510. ⅜ col.

"An attempt to bridge the gap between the usual senior-first year graduate treatment of guided electromagnetic waves and the more advanced topics which are primarily the concern of the graduate student and the research worker in this field . . . Also intended as a reference source for the engineer who has not had the opportunity of keeping abreast with developments in the last two decades. The treatment is self-contained but assumes a knowledge on the part of the reader of elementary field theory and of propagation in waveguides. A familiarity with partial differential equations, Fourier and Laplace transforms and Eigen function expansions is also required."

Proceedings of the IRE, March 1961, p.690. ⅝ col.

"The author has provided a graduate-level textbook on applied electromagnetic theory, with particular emphasis on waves in various types of media. The treatment assumes a prior course at a level such as Ramo and Whinnery's 'Fields and Waves in Modern Radio,' as well as considerable mathematical sophistication. The author's objective was to bridge the gap between the usual senior-year or first-year graduate course in electromagnetic theory and the advanced periodical literature describing modern research. In this reviewer's opinion the objective has been achieved very well, with the book meeting a definite need in the advanced education of radio engineers." *Seymour B. Cohn.*

Colwell, Robert N., ed.
Manual of photographic interpretation. 868p. American Society of Photogrammetry, Washington, D. C., $15.

Engineering news-record, Feb. 16, 1961, p.89. ⅝ col.

"To give this book the kind of authority properly to be expected from a professional-society publication, the American Society of Photogrammetry called on nearly a hundred experts to contribute according to their particular specialties . . . The final product is a comprehensive work on photo interpretation. Individual chapters are devoted to applications of the science in particular fields—engineering, geology, soils, hydrology, urban-area analysis, wildlife management, agriculture, archaeology, geography . . . More than 600 photographs illustrate the volume."

Corben, H. C., & Stehle, P.
Classical mechanics. Ed.2. 389p. 1960. Wiley, New York, $12.

ARS journal, Feb. 1961, p.272. ¼ col.

"Intended for students and practicing physicists. Completely revised to include the applications of the subject during the past 10 years, this edition includes some applications to problems not usually taught in physics departments."

Cremer, H. W., & Watkins, S. B., ed.
Chemical engineering practice. v.10: Ancillary services. 626p. 1960. Butterworth & Co., London, 100s.

Chemical age, Feb. 4, 1961, p.217. ½ col.

"Clearly intended for the chemical engineer; it does not set out to inform the experts in the fields considered. The student should read a book such as this so that he can appreciate the contributions that his specialist colleagues can make to the design of plant and so that he will know the right questions to ask. The practicing chemical engineer will use it to ensure that he is aware of the best current practice. Necessarily there is little fundamental theory in this book and few will read it right through. Most chemists would find something to interest them . . . A useful addition to the series."

Coke and gas, Feb. 1961, p.86. 1¼ col.

"Deals with solid, liquid and gaseous fuels; these sections are written by members of the Department of Industrial and Scientific Research, and discuss the compositions, properties, behaviour and application of fuels and their methods of production. The sections on gases deal with the manufacture, distribution and use of town and special gases from coal, coke, oil, refinery gases, and natural gases, including plant for total gasification. The information here is apparently based on knowledge up to the year 1957. It must be remembered, however, that lengthy as these chapters are they only comprise a small proportion of this immense engineering publication . . . Maintains the very high standard and wide field of treatment so far maintained throughout this important work."

Darr, Jack.
Eliminating man-made interference. 160p. 1960. Sams, Indianapolis, $2.95.

Electrical design news, March 1961, p.117. 8 l.

"A practical book on noise and interference problems in home radios, television receivers, automobile radios, two-way mobile-radio systems, aircraft equipment and marine radios. Twelve chapters deal with interference generation, how it is transmitted, how to track it to its source and how to eliminate or minimize its effects. Actual case histories of many types of interference are given."

De Haan, J. P. See **Haan, J. P. de.**

Dillon, Elizabeth S., & Dillon, L. S.
Manual of common beetles of eastern North America. 884p. 1961. Row, Evanston, Ill., $9.25.

Ohio journal of science, Jan. 1961, p.59. ¼ p.

"Intended . . . for naturalists, amateur collectors, students, and professionals interested in Coleoptera . . . Includes beetles of eastern half of North America west to the 100th meridian and south to Mexico, and is based on approximately 1200 species in 64 families . . . Methods of collecting, killing, preserving, pinning and labeling are included as well as an explanation of structure and use of keys, with glossary in back. Ecology is explained with reference to water, soils, plants and other animals . . . Most of the assembly drawings are good enough to identify families and the manual should serve a useful purpose." *J. N. Knull.*

Science, March 31, 1961, p.1008. 1⅛ col.

"The first of its kind on the largest group of animals, the Coleoptera. To be sure, there are manuals for the general beetle collectors, but they are either too incomplete for reasonable accuracy or too bulky and technical for easy use. The Dillon's book strikes a happy medium. Keys identify some 1200 common beetles . . . There are illustrations galore . . . If the user keeps in mind the fact that not

all known species are included, he should find this book very useful, for never before has it been so easy to identify beetles in the area concerned." *T. J. Spilman.*

Downey, Glenn L., & **Smith,** G. M.
Advanced dynamics for engineers. 362p. 1960. International Textbook, Scranton, Pa., $12.

ARS journal, Feb. 1961, p.272. ⅓ col.

"Intended for senior level undergraduate engineering students and beginning graduate students who have had the introductory course in dynamics and basic knowledge of differential equations and mechanics of materials. The authors have tried to integrate the principles of dynamics with other subject matter encountered in the engineering curriculum."

Engineers' digest, Feb. 1961, p.26. ⅜ col.

"Intended for senior-level undergraduate engineering students, this outstandingly well-produced book is an advanced presentation of engineering dynamics, in which emphasis throughout is laid on the derivation and solution of differential equations of motion, with vector analysis used in many cases as a rigorous and efficient method of analysis. The authors . . . write interestingly and lucidly and include in each chapter a considerable number of typical problems, of varying degrees of difficulty, selected to illustrate the basic principles and the application of theory to actual engineering problems."

Machine design, Feb. 16, 1961, p.254. ⅛ col.

"Emphasis is placed on derivation and solution of differential equations of motion. Vector analysis is used as a rigorous and efficient method of analysis. Topics include kinetic and potential energy, impulse and momentum, Euler's equations, periodic motion of systems, Lagrange's equations, Fourier series, Hamilton's principle, and orthogonality of principal modes."

Ducarme, J. See **Penner,** S. S., & **Ducarme,** J., ed.

Duncan, William Jolly, and others.
An elementary treatise on the mechanics of fluids. 714p. 1960. E. Arnold, London, 70s.

Engineering and contract record, Feb. 1961, p.126. ½ col.

"Intended primarily for undergraduates and students in technical schools and colleges but it will also be found of value to other professional engineers and physicists and to independent and unassisted readers. The authors have kept in mind the desirability of providing a systematic and easily understood account of the basic principles of the science and have covered adequately some of the more elementary technical applications . . . The authors have attempted successfully to foster the interest of the reader and while taking care not to include unnecessary detail, have also avoided the mistake of being superficial."

Dunsheath, Percy.
Electricity; how it works. 248p. 1960. Crowell, New York, $3.95.

Popular electronics, March 1961, p.18. ⅓ col.

"Takes you on a tour through the history of electricity, explaining new puzzles and mysteries as they appear. Sprinkled with descriptions of experiments illustrating many of the basic principles, the book also makes liberal use of figures and graphs . . . Concludes with a chapter on the free electron, thus bringing up the theory of electronics. Recommended for the beginner who wants to know more about this fascinating subject."

Eckert, John E., & **Shaw,** F. R.
Beekeeping. 536p. 1960. Macmillan, New York, $12.50.

Journal of economic entomology, Feb. 1961, p.215. ⅝ col.

"The present book is aptly described as a successor to Dr. Phillips' book [Beekeeping], as it is in no sense a revision. It is a completely new book although in a few instances it follows the form and adopts some of the thoughts of the original . . . The authors . . . have done a very commendable job of picking out the most essential factual information and bringing it up to date. This is not an easy task at the present time when we realize that books have been written on the subject matter contained in some of the chapters and a book could be written on any one of the 24 chapters . . . A book which the reviewer would highly recommend to all who are interested in bees and beekeeping." *E. C. Martin.*

Faber, Oscar.
Constructional steelwork simply explained. Ed.4, revised by John Faber. 123p. 1960. Oxford Univ. Press, London, 16s. 6d.

Structural engineer, March 1961, p.110. ⅛ col.

"Brings up-to-date this elementary textbook, written for the use of students, draughtsmen and assistants interested in the design of steelworks . . . Now conforms to the British Standard Specifications 449:1959, 'The Use of Structural Steel in Buildings' and 15:1948, 'Structural Steel,' Amendment 1, 1959. The fundamental principles are not changed, only simple arithmetic is used and there are no complicated formulae, but the order of approach has been changed to give a more logical sequence. The permissible stresses have been revised and are demonstrated in new practical examples, high strength friction grip bolts, broad flange sections and universal beams are described, and more attention has been given to welding. New diagrams have been prepared throughout."

Transactions of the Institute of Marine Engineers, Feb. 1961, *supplement,* p.x. 6 l.

"Provides an admirable introduction to the fundamental principles of design of constructional steelwork, including instructions in the properties and peculiarities of steel, and the object of enabling students and others engaged in civil engineering to grasp thoroughly the basic knowledge upon which all later skill must be founded is very well achieved."

Fenlon, Hugh F.
Reinforced concrete column tables. 1960. Dodge, New York, $15.

Midwest engineer, Jan. 1961, p.21. ⅛ col.

"Since ultimate strength design has become accepted and utilized in many structures built

today, this book can well serve as a handbook for the practicing structural engineer. The introductory chapter outlines the basic formulas and derivations relating to the design concept. General design considerations such as code requirements for bar arrangements, sections and column length limitations are discussed in the following. The rest of the book is made up of tables for rectangular tied and spirally reinforced columns . . . Presentation is clear and concise." *S. W. L.*

Fisher, James, and others, ed.
Nature; earth, plants, animals. 359p. 1960. Macdonald & Co., London, 45s.

New scientist, Feb. 9, 1961, p.352. ½ col.

"As would be expected, this book about nature edited by such eminent authorities is no casual approach. Each of its many pages presents something vital both in words and pictures . . . The numerous chapters deal in turn with the origin of the Earth, and the developments which have followed. The enthralling story is told in a way that impels the reader to continue. The illustrations in colour and black and white by Hans Erni and his team of experts stir the imagination . . . Another ample section explains in concise fashion the meanings of no fewer than 500 natural history terms. We have no hesitation in recommending this handsome, well bound work." *George E. Hyde.*

Foa, Joseph Victor.
Elements of flight propulsion. 445p. 1960. Wiley, New York, $12.50.

Ordnance, March-April 1961, p.708, 710. ⅔ col.

"Deviates considerably from conventional volumes on flight propulsion. Mr. Foa devotes almost as much effort to nonsteady propulsive flows as he does to steady processes. This trend is very desirable. A sizeable portion of the presentation is original or is presented in a new manner. After starting with the basic ideas, the author leads into one-dimensional approximations, propagation of disturbances, and one-dimensional steady flow. Analyses of nonsteady flows and nonuniform flows follow together with presentations on diffusers, nozzles, dynamic flow machines, pressure exchange, and combustion chambers. He concludes with chapters on steady-flow and non-steady-flow thrust generators . . . This book, highly recommended, will find a niche in the bookshelves of propulsion engineers because of the originality and importance of the material presented." *Loren E. Bollinger.*

Franken, Herbert.
Schütze und Schützensteuerungen. 382p. Springer, Berlin, DM 42.

Engineering, Feb. 24, 1961, p.296. ⅝ col. including other reviews.

"Almost 400 pages on contactor technology are probably more than most engineers will want at any particular moment. This is therefore not a book for reading right through . . . Essentially a reference work and as such is a joy to use. The arrangement of the subject matter is logical and the style of writing is lucid. There is a good deal of constructional detail, but there are also excellent sections dealing with the physics of electrical contacts and with various types of switching surges. Control circuits are discussed and throughout the work the author is drawing on extensive experience with installations. The bibliography provides access to relevant articles and papers." *P. Hammond.*

Fraser, A.
Animal husbandry heresies. 200p. 1960. Lockwood, C., London, 16s.

Dairy science abstracts, Feb. 1961, p.102. ⅛ col.

"The author examines critically many past and present ideas on inheritance, environment and husbandry of farm animals. He gives due appreciation of what he considers to be the best, and forthright condemnation of the worst —be it in farming practice (*e.g.* the cult of the pedigree), in scientific thinking (*e.g.* the ready application of the results of progeny testing in spite of the insufficiency of knowledge of progeny methods) or in both (exaggeration of the importance of breeding) . . . Makes entertaining and stimulating reading." *R. B. S.*

Gatland, Kenneth W., ed.
Spaceflight technology; proceedings of the first Commonwealth spaceflight symposium. 365p. 1960. Academic Press, New York, $11.

Missiles and rockets, Feb. 27, 1961, p.87. ¼ col.

"Nearly two dozen of the top European spaceflight experts contributed to this Commonwealth conference, held in 1959. In several instances, the information given . . . is of purely local interest . . . Generally, however, the papers presented will be of use to many engineers and scientists in the spaceflight field. Among the topics covered are launching vehicles . . . propulsion system, instrumentation, tracking and communication, and the exploration of the moon."

Gowan, J. E., & **Wheeler,** T. S.
Name index of organic reactions. Ed.2. 293p. 1960. Longmans, New York, 50s.

Chemical age, Feb. 18, 1961, p.301. ⅔ col.

"The first edition . . . proved deservedly popular; this second edition is considerably expanded and developed and should be of even greater value. The body of the work consists of brief notes on over seven hundred organic reactions, listed alphabetically under the name of the investigator generally associated with the process. The entry consists of a brief statement of the nature of the reaction, usually in one or two sentences, with equations and, where appropriate, structural formulae. The entry concludes with one or more references to original papers, [or] review articles . . . Recommended to all organic chemists."

Gray, Laurence F., & **Graham,** R.
Radio transmitters. 700p. 1961. McGraw, New York, $12.50.

Electronics, March 10, 1961, p.271. ¾ col.

"Aimed at the design, operation and maintenance transmitter engineer, this book provides a practical analysis of all the components that go into a radio transmitter . . . Provides information on amplifier design, coupling circuits, frequency control units, power supplies, cooling equipment, control circuits, methods of modulation and keying, and typical testing and

measurements techniques for complete transmitters . . . Although many fine engineering books have been published in the past, most of them cover radio transmitters in a chapter or so buried within many other chapters of general electronic engineering. This well written and profusely illustrated handbook will fill the needs of engineers concerned strictly with radio transmitters." *L. S.*

Guillot, Roger.

La probleme du broyage et son evolution. 186p. 1960. Gauthier-Villars, Paris, 29.35 N.F.

Cement, lime and gravel, Feb. 1961, p.56. 1⅛ col.

"Contains four chapters—each with an appendix—and a bibliography. Chapter I deals with the techniques of comminution and outlines the latest features of mechanical development with particular reference to tumbler mills . . . Chapter II considers the crushability of materials from both qualitative and quantitative points of view . . . The theory of comminution is the subject of Chapter III . . . The last chapter deals with the limits of the concept of mechanical comminution . . . The value . . . lies in its comprehensive critical examination of the findings of the more important authorities." *B. G. F.*

Haan, J. P. de.

Practical shipbuilding. v.3B, pt.2: Rigging, equipment and outfit of seagoing ships. Technical Pub. Co. H. Stam, Haarlem, Netherlands, 245 guilders.

Shipbuilders and marine engine-builder, Feb. 1961, p.136. ¼ col.

"A comprehensive guide and manual for shipbuilders, students, ship owners and ships' officers. Printed in English, Part 2 . . . comprises five chapters. These deal, respectively, with joiners' work, plate work and accommodation; wood decks and deck coverings; insulation and refrigerating machinery; pipe work, fire extinguishing, ventilation and heating; and, preservation, paint work and tank testing . . . Essentially a practical book and in addition to setting out standard practices for various installations on ships, it gives details of the particular products and installations of various manufacturers."

Hamilton, G. N. G., & **Cooke,** H. B. S.

Geology for South African students. Ed.4. 441p. 1960. Central News Agency, Ltd., Johannesburg, Union of South Africa, 30s.

Economic geology, Jan.-Feb. 1961, p.227. ¼ p.

"An extremely elementary textbook for students in the Union of South Africa, S. W. Africa, and the two Rhodesias. The section on Physical Geology is brief, with the omission of theoretical considerations . . . Covers minerals, rocks, a few pages on general physical geology, structure, climate and landscape, paleontology, and historical geology. There are separate chapters on the stratigraphy of the southern Africa countries, and a chapter on economic geology . . . Outside readings are listed for supplementary material. Included is a topographic map of southern Africa and a geological sketch map . . . Should prove satisfactory for the purpose for which it is intended, and others interested in southern Africa will find many helpful passages."

Henry, Norman F. M., and others.

Interpretation of X-ray diffraction photographs. Ed.2. 282p. 1960. St. Martins, New York, $15.

Mining magazine, Feb. 1961, p.94. ⅜ col.

"Intended primarily as a teaching manual for students and for research workers, it is a complete text. Assuming only an elementary knowledge of the geometry of crystals the authors discuss the fundamental principles involved in indexing ray deflections, going on to the determination of unit cell dimensions and crystal orientation. Following the necessary introductory chapters X-ray procedures are explained, five chapters covering the taking, interpretation, and applications of powder photographs. Alloy systems and identification of crystalline materials are also considered. The material . . . has been thoroughly revised, new appendixes and tables accompanying the changes in text."

Herdan, G.

Small particle statistics; an account of statistical methods for the investigation of finely divided materials. Ed.2, revised. 418p. 1960. Butterworth & Co., London, 80s.

Bulletin of the Institution of Mining and Metallurgy, Feb. 1961, p.xii, 1¾ col.

"Of necessity many aspects related to small particles have been dealt with only briefly . . . 631 references in all have been included, grouped at the end of the appropriate chapter, whereby the reader can obtain additional information and further details. In addition to the many references, there is also a bibliography of 21 books and symposia on the subject of small particles. It is perhaps rather unfortunate that only two references are dated later than 1958 . . . Quite understandably, perhaps, there are some omissions . . . Nevertheless this is a book one can strongly recommend to anyone connected however remotely with activities where small particles are involved." *D. J. Ottley.*

CPE and atomic world, Feb. 1961, p.94. 1⅜ col.

"The author does not over-elaborate the statistical treatment; the concepts he needs are quite simple, basically the idea of a ***distribution*** . . . of ***sampling*** . . . and of ***significance tests*** . . . These concepts are expounded and illustrated with a wealth of relevant data; indeed, it is an excellent feature of the book that real data, taken from technical literature, is copiously used to illustrate the arguments." *E. H. Lloyd.*

Industrial chemist, Feb. 1961, p.98. 1¼ col.

"Purports to be a treatise on the statistics of small particles but essentially it is concerned with the statistics of size distribution. Other applications of statistics to powder systems such as in size reduction, solid mixing or emulsification are given only minor treatment and the reviewer cannot recommend anyone to use this book for even background reading on these particular subjects . . . The present second edition under review is still an untidy adolescent . . . The list of errors is not exhaustive but . . . illustrate deficiencies in

presentation. In spite of . . . shortcomings no powder technologist can really afford to be without 'Small particle statistics'. However there is not a strong case for recommending the second edition to those who are already in possession of the first." *David Train.*

Journal of the Oil and Colour Chemists' Association, Feb. 1961, p.158. ⅝ p.

"Will give pleasure to all who are working on or are interested in the application of statistical methods to problems associated with fine particles . . . Well planned and Dr. Herdan develops his theme in a characteristcally lucid and logical manner . . . A 'down to earth' treatment of practical problems and the necessary mathematics is clearly presented . . . Can be recommended both to those who are interested in statistical applications *per se* and to workers in the fine particle field who are interested in solving their problems by the most effective statistical methods." *W. M. Morgans.*

Hogben, Lancelot Thomas.

Mathematics in the making. 320p. 1960. Macdonald & Co., London, 50s.

New scientist, Feb. 23, 1961, p.494. 1¼ col.

"Described by the author as 'not in any sense an authoritative guide to the history of mathematics' . . . The verbal content—a chronological account of outstanding mathematical ideas—is accompanied throughout by pictorial illustrations. These are excellent, and although the text is decidedly not for the million, and not withstanding some carelessness in its preparation, it is often illuminating, and the book should give pleasure and profit to the reader predisposed to enjoy mathematical reasoning . . . If the illustrations . . . had been presented as examples of a particular region of experience to which the formulae happen to be applicable, instead of as in some way justifying the formulae, the book would have deserved high recommendation. The necessary change would be very slight, but immeasurably important." *Herbert Dingle.*

Hogg, John Clarence, and others.

Physics and chemistry; a unified approach. bk.1. 374p. 1960. Van Nostrand, Princeton, N. J., $4.96.

Journal of the Royal Institute of Chemistry, Feb. 1961, p.51. 1 col.

"Designed for pupils in their last two years at American schools, where chemistry and physics are often taught as a unified science. The basic unity between these two subjects is obvious, but as the standard of the material varies from third- to sixth-form work, the book has no direct value as a text for any particular examination in this country. This is perhaps unfortunate . . . The whole text is very clearly written, and the use of units in calculations is stressed throughout. Very effective diagrams are included and the presentation is to be highly recommended . . . Should surely be in every school library. Teachers should find it a good source of ideas for presentation of material, and also for demonstrations." *C. T. Greenwood.*

Houghton, Edward Lewis, & **Brock,** A. E.

Aerodynamics for engineering students. 440p. 1960. E. Arnold, London, 45s.

Aircraft engineering, Feb. 1961, p.56. 1 col.

"A first glance at the book is promising . . . A more detailed inspection . . . however, reveals several falacies and points of confusion. The most important concerns, not only an incorrect derivation of Bernouili's equation but also a wrong interpretation, which is related to a general confusion between the effects of momentum and energy . . . This book is uneven. Although much . . . would be useful it is lacking in some of the most fundamental aspects of aerodynamic theory where the utmost care is necessary if the student is to have a sound basis for his subsequent aerodynamic development. It is therefore unfortunate that this book does not fulfil its initial promise and purpose of providing the complete elementary aerodynamic textbook. This has still to be written." *G. J. H.*

New scientist, March 2, 1961, p.562. ⅝ col.

"Intended for students . . . taking the University of London BSc(Eng) Degree, Parts I and II. Its scope is thus limited . . . Intended to bring the reader to the threshold of advanced aerodynamics. No doubt the students of these two lecturers will find the book helpful. Those at other colleges may also do so, but this depends, in some measure, on how their lecturers, are teaching them . . . Lucidly written and adequately illustrated. As one would expect, bearing in mind both its price and its publisher, it is well produced. Its index is rather less copious than the writer would have liked to see." *P. L. Teed.*

Howe, R. M.

Design fundamentals of analog computer components. 261p. 1961. Van Nostrand, Princeton, N. J., $7.50.

Electronics, March 10, 1961, p.270. ⅝ col.

"Written for the engineer or scientist who is already familiar with analog computers and their general application, this book explores the finer points of computer operation as related to component design. Two general chapters deal with system considerations . . . and with the effects of component errors on problem solutions. Individual chapters are then given to d-c amplifiers, multipliers, function generators, recorders and miscellaneous equipment. The principal components are thoroughly described and several actual design procedures are traced step by step. Throughout . . . constant reference is made to specific models of contemporary equipment. The associated theory is thus well related to actual hardware, and this practical approach is one of the book's main merits." *G. V. N.*

Hübner, W. E., & **Schiltknecht,** A.

Practical anodising of aluminium; translated from the German by Winifred Lewis. 350p. 1960. Macdonald & Evans, London, 55s.

Electroplating and metal finishing, Feb. 1961, p.55. ¾ col.

"One of those books about which the kindest thing would be to say nothing. Nevertheless, as the book has been submitted for review, we feel bound to justify our lack of enthusiasm. Possibly the least of its faults is that, being a translation of a German book published in 1956, much of it cannot help being out of date. But let us look up some things connected with *practical* anodizing . . . Look up tests on anodized parts and anodic coatings. Any tests,

thickness tests, sealing tests, hardness tests, corrosion resistance, anything. The only reference to any of these is to be found in the Appendix: *'Testing Methods. The specialist literature must be referred to for the testing methods, and no attempt will be made to describe them here'.* Well, well!"

Iron and Steel Institute.
Production of wide steel strip. 187p. 1960. The Institute, London, 65s. (Special report, no.67.)

British steelmaker, Feb. 1961, p.62. ⅝ col.

"Although the title seems to carry the implication that the symposium was concerned mainly with rolling, the papers in fact cover almost every aspect of the subject, including steelmaking, quality control, mill layout and design, hot rolling, cold rolling, annealing, and coatings. There is, in fact, something for everyone; even those whose interests are financial or commercial are catered for, for there are two papers of special significance on the future requirements of the metal container and vehicle industries . . . It was intended that this symposium should raise more questions than it answered, and publication of Special Report No. 67 will do much to stimulate thought in this rapidly developing field."

Janes, M. F. See **LaLonde,** W. S., jr., & **Janes,** M. F., ed.

Kallen, Howard P.
Handbook of instrumentation and controls. 692p. 1961. McGraw, New York, $15.

Compressed air magazine, March 1961, p.31. ⅝ col.

"Planned to help the reader determine how to best select and effectively apply instruments and control systems for mechanical services by providing a wide range of authoritative and quantitative data. Extending from basic facts on instruments to thorough descriptions of complete control systems, this guide presents important information needed to procure, specify, or design equipment . . . Complicated discussions are omitted in favor of many quick-reference data. Numerous clear illustrations—550 of them—and tables, charts and graphs are used to convey technical aspects of instrumentation. Of particular interest is the presentation of many control systems that are completely illustrated to demonstrate modern practice."

Kamelet, M. J., ed.
Organic electronic spectral data. 4v. Interscience Publishers, New York.
v.1. 1946-1952. 1208p. $28.50.
v.2. 1953-1955. 919p. $17.50.

Chemical age, Feb. 25, 1961, p.328. ½ col.

"The present volumes go far beyond anything previously attempted; they cover compounds of all types. The main text lists the compound's molecular formula (which determines its position), its name, the solvent used, the wavelength of the absorption maximum and the logarithm of the extinction coefficient, and the journal reference . . . Will be extremely useful and should be regarded as a necessary companion to all spectrophotometers devoted to organic work. The price can only seem high to someone who has not considered the tremendous task of compilation, and the amount of time that can be saved by its use."

Karassik, Igor, & **Carter,** Roy.
Centrifugal pumps. 496p. 1960. Dodge, New York, $15.75.

Public works, March 1961, p.24. ⅛ col.

"A practical and very complete book for users and designers of centrifugal pumps . . . Covers the entire field of centrifugals and their appurtenances and controls. There are five chapters: Pump types and construction, with classification and nomenclature; pump performance; controls, drivers and priming; service and selection; and installation, operation and maintenance."

Wastes engineering, March 1961, p.157. ¼ col.

"Describes and illustrates the construction and major components of all types of centrifugal pumps, including vertical, self-priming and regenerative pumps . . . Discusses the installation, operation, maintenance, selection and performance of this equipment. Information on the types of controls, drivers, and methods of priming is also given. A useful data section containing information required for pump installations and analyzing performance completes the book."

Kenyon, Richard A.
Principles of fluid mechanics. 216p. 1960. Ronald, New York, $7.

ARS journal, Feb. 1961, p.272. ⅝ col.

"Written for a first course in fluid mechanics. The author's goal is to present the fundamental principles with a greater depth and rigor than is found in other elementary texts. It is his belief that the study of unsteady compressible, or general, flow and the application of the calculus in a basic but rigorous course in fluid mechanics is essential not only for those who will pursue advanced work in fluid flow but for those whose need is fundamental theory."

Engineering news-record, March 23, 1961, p.161. ¼ col.

"The author emphasizes the basic unity of fluid mechanics and thermodynamics. He makes a rigorous approach, stressing the importance of fundamental theory to the study of compressible and incompressible fluids. He proceeds from the general case of unsteady, compressible, three-dimensional flow to the special cases of one-dimensional, steady, incompressible and ideal flow. Applications treated include motion of rockets and satellites, turbomachinery and jet engines."

Koch, R. C.
Activation analysis handbook. v.1. 219p. 1960. Academic Press, New York, $8.

Chemical age, Feb. 11, 1961, p.262. ⅝ col.

"During the last 10 years there has been an ever increasing application of the method of activation analysis for it can be a sensitive and speedy way of determining trace quantities of many elements. However, before a specific analysis is undertaken it is necessary to collect and examine particular data . . . All such information and data have been collected by Dr. Koch . . . and arranged in tables ranging from hydrogen to plutonium. In addition the hand-

book contains sections on experimental methods, theoretical aspects, a comprehensive bibliography and a detailed index . . . Should be of great value to analysts who have the task of estimating trace quantities, especially those who have not tried this new procedure."

Koiter, W. T., ed.

Theory of thin elastic shells. 496p. 1960. Academic Press, New York, $9.

Physics today, Feb. 1961, p.64. ½ col.

"A group of individuals interested in the mathematical theory of shells gathered in the Netherlands for a few days in August, 1959. The meeting was open only to invited speakers and invited spectators. This book presents the text of the invited lectures. There are three papers on the general theory, ten on the stability of spheres, cylinders, and cones, six on bending stresses in shells of various shapes, two on membrane theory, and two on the geometrically nonlinear problem for shallow shells and cylindrical shells. Most of the papers are in English, but five are written in German and one in French . . . These papers represent . . . [the authors'] latest contributions to the subject and are therefore of immense interest to the research worker." *Ellis H. Dill.*

Kölbel, H., & Schulze, J.

Projektierung und Vorkalkulation der Chemischen Industrie. 491p. 1960. Springer, Berlin, DM 61.50.

Industrial chemist, Feb. 1961, p.99. 1 col.

"This unusual book is not a contribution to chemistry and will not, therefore, be of interest to ordinary chemists. It is concerned, as its title indicates, with methods of planning and costing in the chemical industry and, no doubt, chemical engineers and works chemists who are planning new processes or plant will acclaim it . . . Much space is devoted to methods of costing and their specialties in relation to chemical plant and processes . . . An English translation . . . should have a considerable market on both sides of the Atlantic." *A. McGookin.*

LaLonde, William C., jr., & Janes, M. F., ed.

Concrete engineering handbook. 1216p. 1961. McGraw, New York, $25.

Plant management and engineering, Feb. 1961, p.80. ⅛ col.

"Provides comprehensive and up-to-date reference on design methods and data, for all types of concrete structures . . . Presents wide range of material, including not only design methods for various types of structures, but also special résumés on structural theory, torsion, materials, and construction methods, many diagrams and tables, and other design aids. Large section is given to design of buildings and their elements. Also covered are concrete chimney design, bin design for bulk storage of materials, pavement design, bridge design, and design of skin structures."

Lee, Garth L., & Van Orden, H. O.

General chemistry; inorganic and organic. 637p. 1960. Saunders, Philadelphia, $7.25.

Journal of chemical education, Feb. 1961, p.A110, A112. ⅝ col.

"Although not specifically so stated . . . this book appears to be intended for students who lack previous preparation in chemistry. The subject matter falls into three divisions: chapters 1 to 7 covering general definitions and introducing atomic structure and bonding, chapters 8 to 26 containing a more extensive description of the elements . . . and chapters 27 to 37 devoted to organic chemistry. The amount of space allotted to organic chemistry (30%) is somewhat greater than is usual in a general chemistry textbook. The textual material is easy reading and the illustrations profuse and clear . . . On the whole . . . should prove quite satisfactory for the elementary chemistry student." *Carl R. Meloy.*

Linsley, Horace E.

Broaching; tooling and practice. 216p. 1961. Industrial Press, New York, $6.50.

Machinery (New York), March 1961, p.242. ⅜ col.

"This well-illustrated book brings together a wealth of technical and general information covering the entire field of broaching—internal, external, vertical, and horizontal . . . Describes in detail how each type of broaching machine operates and the types of work for which each is best suited. Various kinds of broaching operations such as spline broaching, gear broaching, rotary broaching, continuous or chain broaching, and horizontal surface broaching are explained . . . Will be helpful to those in the metalworking field who have not fully investigated broaching possibilities as a means of reducing production costs. Tool and manufacturing engineers will also find the book of considerable interest . . . Should provide good source material for engineering college and technical institute courses which deal with manufacturing processes, machine tools, tool design, and cost reduction programs."

Mackenzie, J. D., ed.

Modern aspects of the vitreous state. v.1. 226p. 1960. Butterworth & Co., London, 50s.

Chemical age, Feb. 18, 1961, p.301. ½ col.

"Whatever the reason, there are very few books about glass; the present one will be very welcome and its successors will be eagerly awaited. The editor has stuck to the 'Modern aspects' of his title; there are few recipes . . . There are full subject and author indices. It can be seen from the latter that few scientists have done sufficient research on the vitreous state to warrant many references to their work. This series should encourage more prolonged intensive studies of a field that offers much of interest."

Journal of the Royal Institute of Chemistry, Feb. 1961, p.53. ¾ col.

"Comprises eight essays on glass . . . Emphasis is on structure and other fundamental aspects . . . On the whole, the book is stimulating, but there is a good deal of overlap, and most of the authors discuss the merits of the various rival theories, although some of the latter probably apply to different ranges of composition with silicate glasses and are not really mutually exclusive . . . Can be highly recommended to anyone interested in the general aspects of the solid state, as well as to polymer chemists and glass technologists." *R. S. Bradley.*

Maréchal, A., & Francon, M.

Diffraction, structure des images, influence de la cohérence de la lumière. 201p. 1960. Editions de la Revue D'optique Théorique et Instrumentale, Paris, unbound.

Journal of the Optical Society of America, March 1961, p.372. ⅛ col.

"Deals largely with those cases where aberrations and diffraction, if present singly, would contribute about equally to the lack of resolution, so that their effect on each other must be taken into account. Also covered are related fields such as phase contrast, the information content of optical images, spurious resolution of test patterns, etc. A few photographic illustrations help to bring out the practical implications of the theory . . . This compilation of the work of many investigators from many nations into a single clear, coherent volume with a thorough bibliography is to be welcomed." *L. Ivan Epstein.*

Markley, Klare S., ed.

Fatty acids; their chemistry, properties, production and uses. Ed.2. 4 pts. pt.1. 714p. 1960. Interscience Publishers, New York, $22.50.

Soap and chemical specialties, Feb. 1961, p.175. 1¼ col.

"Largely rewritten and augmented edition . . . The author points out: 'Considerable expansion . . . resulted from the more comprehensive treatment of the lower members of the fatty acid series, the hydroxy-, keto-, branched chain, and polycarboxylic acids and their derivatives. The industrial production and utilization of fatty acids, which were only superficially treated in the first edition, are stressed throughout the present work and also are the subjects of specific chapters'."

Marriott, Richard.

Engineering drawing for students. 80p. 1961. Methuen, London, 6s.

Engineers' digest, Feb. 1961, p.26. ¼ col.

"Despite its small size, the book deals with all important aspects of the subject concisely, yet lucidly. Various types of projection are explained, and suggestions are given to help in developing the ability to make simple freehand drawings. The drawing exercises in machine parts have been arranged conveniently in groups, centered around particular topics, each group being introduced by an illustration and a very brief description of the engine, machine, or apparatus on which the exercises are based, thus enabling the student to revise his background knowledge and appreciate the function of various specific machine parts."

Martin, Alfred N.

Physical pharmacy. 692p. 1960. Lea, Philadelphia, $15.

Journal of chemical education, Feb. 1961, p.A121. ⅝ col.

"Combines the basic concepts of classical physical chemistry with applications to pharmacy and medicine . . . The basic physical chemistry concepts are presented in such a way that the student is able to apply them to problems involving standardization, stability and absorption of drugs and drug products. Numerous examples of such applications are to be found in the text . . . Explanations given and the problems included require only freshman mathematics for their understanding and solution . . . Up-to-date in all respects. Despite the fact that the text is written primarily for pharmacy students and manufacturing pharmacists, it serves also as an ideal text for use in the premedical program as well as in any beginning course in physical chemistry. The emphasis on drugs and problems involving drugs makes the text readable and interesting to most students of physical chemistry." *N. M. Ferguson.*

Massey, Harrie.

New age in physics. 342p. 1960. Harper, New York, $5.

Times science review, Spring 1961, p.19. ⅛ col.

"Professor Massey is probably optimistic in thinking that most, if not all, of his book could be understood by anyone taking the trouble to read it seriously. But he so evidently combines personal common sense and practical interest with theoretical mastery that he may convey more to more readers than might be expected from his subjects. Among them are quantum mechanics, electrons in solids, computers, relativity, research on the atomic nucleus, cosmic radiation, radio astronomy, his own field of upper atmosphere research, and artificial satellites and space probes. He tries to give reasons as well as conclusions —and mostly does."

Matz, G., & Gayer, P.

Berechnung von Gusseisernen emaillierten Druckbehältern. 233p. Springer, Berlin, DM 37.50. (Verfahrenstechnik in Einzeldarstellungen, v.7.)

Engineer, Feb. 17, 1961, p.250. ⅜ col.

"While much literature is nowadays available concerning the chemistry of enamels and its influence upon physical characteristics, much less is known with regard to the stresses which arise in enamel . . . The present monograph deals with the stress distribution in the enamel of a cast iron pressure vessel with a volume of 6000 litres . . . A major part of the book is devoted to a full and critical treatment of the mathematical theory, with certain novel extensions; a full calculation of the stresses arising at any point of the vessel under the influence of internal pressure is here given for the first time."

Matz, Werner.

Wärme- und Stoffaustausch in Arbeitsdiagrammen. 142p. 1960. Springer, Berlin, DM 24.

Engineering, Feb. 17, 1961, p.263. ⅜ col. including other reviews.

"Discusses the use of enthalpy-composition diagrams for the representation of processes occurring in rectification and extraction columns and similar plant in which heat and mass transfer occurs between the two phases of a binary mixture. Only material and energy balances are considered and no light is thrown on the calculation of the *rates* of the transfer processes . . . The author makes lengthy references to the value of projective geometry, but makes only trivial use of it." *D. B. Spalding.*

Mellan, Ibert.

Behavior of plasticizers. 280p. Pergamon, New York, $8.

Canadian chemical processing, Feb. 1961, p.98. ⅜ col.

"The author takes a new approach to the treatment of plasticizers, in that he sets out to show the interrelationship of all their physical properties. For example, the behavior of a plasticizer is dependent upon its inherent physical properties, its chemical structure, and how such properties as vapor pressure, viscosity and melting point affect the molecular aggregate which is formed with the polymer. Also, there is the question of how the compatibility is related to chemical structure of the plasticizer as well as the polymer. Some of the items treated . . . are: The mechanism of plasticizers based on strong primary valance bonds, the ratio of tensile strength to melt viscosity, the thermodynamics . . . the second-order transition temperature and influence of plasticizers on processing."

Menon, A. K.

Indian essential oils. 89p. Sree Saraswaty Press, Calcutta, 10s.

Chemical age, Feb. 11, 1961, p.262. ¼ col.

"A review of the Indian essential oil industry . . . The first chapter (34 pages) reviews 37 different types of essential oils; the second (4 pages), six spice oils; the third (2 pages) covers attars and aqueous products while the fourth chapter deals with musk, ionore, coumarin, vanillin and a miscellany of aromatic substances . . . Will be of value to research workers as well as to commercial interests connected with the industry."

Murphy, George Moseley.

Ordinary differential equations and their solutions. 451p. 1960. Van Nostrand, Princeton, N. J., $8.50.

Engineer, Feb. 17, 1961, p.249. 1½ col.

"Professor Murphy states that . . . [the book] is written to help in the solution of differential equations. It certainly achieves its aim, and scientists and engineers will find it of great usefulness. It is, however, a book which has more than a utilitarian value. It is packed with important material on the theory of differential equations; it contains solutions of historial [sic] interest; it includes some solutions for the sake of their ingenuity or for the neat form of the result. Although the author professes no pretence to mathematical elegance and apologises for any faults in this respect, there is plenty . . . for the mathematically inclined who want more than the mere solution to an equation. There results a very interesting and readable book as well as a useful one . . . Will serve a wide range of readers and is highly recommended."

Nalivkin, D. V.

Geology of the U.S.S.R.; translated from the Russian by S. I. Tomkeieff. 176p. 1960. Pergamon, New York, 100s. (International series of monographs on earth sciences, v.8.)

Nature, Feb. 25, 1961, p.610. 1⅓ col.

"The range of the book is . . . so vast that the coverage is necessarily thin, seldom with more than a few words on any one geological feature. But the observations often suffice to whet the interest, encouraging the specialist reader to search elsewhere for details. The translation is literal, and for the most part is lucidly written, the few obscurities being due to misplaced punctuation and inadequate proofreading . . . The publishers state that 'this very important volume is the first of its kind to be written in any language.' Nevertheless there are other important texts on Russian geology, recently produced overseas and little known to British readers." *C. F. Davidson.*

Petroleum, Feb. 1961, p.75. ⅓ col.

"First of its kind to be written in any language . . . Contains both a general outline of the geology of the U.S.S.R. and sections devoted to specific regions each including physiography, stratigraphy, tectonics, magmatism and economic geology. With the book is a geological map of the U.S.R.R. . . Written in a clear and distinct style and, while avoiding technicalities and much scientific jargon, presents a full and informative account of an up-to-date geological survey of the whole territory of the U.S.S.R. This book, essentially simple in its presentation, is nevertheless a full and comprehensive source of information addressed to a very wide range of readers—from the specialist geologist to the elementary student or amateur geologist."

Parry, Albert.

Russia's rockets and missiles. 382p. 1960. Doubleday, Garden City, N. Y., $4.95.

Design news, Feb. 13, 1961, p.148. ½ col.

"Dr. Albert Parry, one of the first experts on Russia to draw America's attention to Soviet work in rocketry, presents a dramatic account of Russian efforts to master outer space. New light is thrown on how captured or hired German scientists contributed to Russian rocket success after the war, and Soviet military use of rockets and the Soviet IRBM now being installed on Russia's powerful submarine fleet. The story of the Sputniks and Luniks and Russia's plans for peaceful use of rockets and missiles are also illuminated."

Missiles and rockets, March 6, 1961, p.44. 1 col.

"Highly penetrating and fascinating survey of Russian efforts in the missile and space field . . . Begins before the days of Peter the Great in the 17th Century . . . Ends with the great Soviet *Sputniks.* Along the way . . . [the author] presents one of the most incisive explanations of how the Russian rocketry accomplished its astonishing successes . . . The heart of Parry's book is its chapters on the Russians' current missile and space programs. He describes the Soviet missile arsenal in great detail. He gives similar treatment to the huge Soviet space boosters, their satellites and spacecraft and their scientific accomplishments in space." *J. B.*

Penner, S. S., & Ducarme, J., ed.

Chemistry of propellents. 651p. 1960. Pergamon, New York, $10.

Aircraft engineering, Feb. 1961, p.56. ⅔ col.

"Contains the proceedings of a meeting organized by the AGARD Combustion and Propulsion Panel, and held in Paris on June 8-12, 1959 . . . Despite the fact that the proceedings

were inevitably restricted to some extent by security requirements, it is nevertheless apparent that the meeting served a useful purpose in giving much detailed information regarding latest design features and also an overall picture of developments in propellent chemistry. Twelve papers were read and they were followed by a great deal of general comment and a round-table discussion on basic propulsion problems, which is recorded, albeit in edited form." *C. G. K.*

Polydoroff, W. J.

High-frequency magnetic materials; their characteristics and principal applications. 220p. 1960. Wiley, New York, $9.

Electronic industries, March 1961, p.78. ¼ col.

"This book, written by a pioneer in the field, is a comprehensive guide to ferromagnetic materials and their applications at high frequencies. The author first discusses the characteristics of magnetic materials and powders and dscribes the tests which are used to measure these characteristics. He then considers such important applications as ferroinductors, variable inductors for permeability and incremental permeability tuning, and ferromagnetic antennas. In addition, several special applications are discussed, including microwave ferrites."

Price, Derek de Solla.

Science since Babylon. Yale Univ. Press, New Haven, Conn., $4.50.

Product engineering, March 13, 1961, p.101. ⅜ col.

"A compilation of five lectures delivered at Yale in the fall of 1959, and is certainly not intended to be a history of science. Rather it records a series of crises that Dr Price feels has affected the course of science, the birth of a 'scientific civilization, the departure of science from the realm of pure thought, its transformation into scientific technology, and the transition of 19th-century classical theories to the explosive multiplication of our 20th-century discoveries'." *B. A. L.*

Pulver, Harry E.

Construction estimates and costs. Ed.3. 640p. 1960. McGraw, New York, $12.

Plant management and engineering, Feb. 1961, p.80. ¼ col.

"How to estimate cost of any type of construction job—either light or heavy—is covered in detail in [this] newly published revision . . . Various aspects of construction work, such as handling and transporting materials, excavation, piling and bracing, concrete, masonry, wood work, structural steel, roofing, heating and air conditioning, plumbing, electrical work, lathing and plastering, etc., are covered in considerable detail. Each phase of construction work is presented separately, and simple arithmetical methods for accurately estimating costs are described and illustrated. Every step of the work is covered—from preliminary investigation through approximate estimates, to complete, detailed estimates that include overhead; material, labor, and equipment costs; and profits."

Redwood, Martin.

Mechanical waveguides. 300p. 1960. Pergamon, New York, $9.

Electronic engineering, March 1961, p.180. ⅔ col.

"Interest in this subject stems from its relevance to the study of the properties of materials and to such diverse fields as the properties of ultrasonic delay lines and seismology. The object of the book is to give a comprehensive account of the basic properties of guided waves in solids and fluids . . . The author has preferred to develop his subject in a way which requires no knowledge of electromagnetic theory: this is perhaps desirable for the beginner, but the serious student should be aware of the closely related work in other fields. Considered as a whole, the book is a most useful introduction to an interesting subject . . . Contains a lengthy list of references and useful appendices in which the key formulae are collected together." *J. Brown.*

Electronics, March 10, 1961, p.270. ¼ col.

"A unique book in that it is devoted to the properties of acoustic and ultrasonic guided waves in solid and fluid media. The principles of guided wave transmission are outlined in the first few chapters. A comprehensive survey of recent research is attempted with considerable detail of a few important papers included and the titles and locations of several hundred other papers given at the ends of the appropriate chapters. Emphasis is placed on the theoretical analysis of guided waves. No details of experimental techniques are given but some references are included." *Robert E. Beam.*

Richardson, E. G., ed.

Aerodynamic capture of particles. 200p. 1960. Pergamon, New York, 50s.

Discovery, Feb. 1961, p.81. 1¾ col.

"Some time in 1960 . . . a Conference was held at the British Coal Utilisation Research Laboratories at which some fifteen papers were presented concerned with basic and industrial problems involving the behaviour of particles moving in a medium of gas or liquid in which there may be solid bodies present. In this book these papers are collected together with summaries of the discussions which followed the three sessions into which the papers were grouped . . . The Proceedings should . . . prove a valuable addition for some time to come to the libraries of those many industrial and research institutions that are concerned with various aspects of the subject." *A. D. Young.*

Roark, Raymond J.

Formulas for stress and strain. Ed.3. 381p. McGraw, New York, $8.25.

Product engineering, March 13, 1961, p.102. ⅝ col.

"Some of the additional information in this third edition includes more data and formulas on shear leg, circular arches, flat plates, pressure vessels, stress concentration factors . . . Intended primarily as a reference book and makes available a compact summary of formulas, facts and principles pertaining to strength of materials . . . Derivations of formulas and detailed explanations, such as are appropriate in a text book, are omitted, but a sufficient number of examples are included to illustrate the application of the various formulas and methods."

Roberts, John Keith.

Heat and thermodynamics. Ed.5, revised by A. R. Miller. 619p. 1960. Interscience Publishers, New York, $7.25.

Journal of chemical education, March 1961, p.158, A192. ⅞ col.

"One extremely valuable feature . . . is the great variety of experimental methods described. This is particularly true of the first 11 chapters dealing with the measurement of temperature, heat, heat conduction, heat capacity, heats of phase change and the attainment of low temperatures and liquefaction, and of chapter 20 dealing with radiation . . . There are only 51 examples, 18 in one chapter, leaving an average of one and a half per remaining chapter. It is surprising that there is no mention of the Beattie-Bridgeman and Benedict-Webb-Rubin equations of state, or of heat pumps." *Hugh M. Spencer.*

Proceedings of the Physical Society, Feb. 1, 1961, p.557. ¾ p.

"A new edition of an old favourite . . . However, the time must come when not only a textbook itself but also the habit of publishing new editions of it will have to be revised. The present volume is dangerously near to this stage . . . New material certainly requires additional space, but space might be saved by omission or streamlining of apparatus description and illustration, now often more than half a century old . . . At 45*s.* this book is a bargain for those who know how to find things in it, but this will not be easy for the average student." *K. Mendelssohn.*

Research applied in industry, Jan. 1961, p.40. ⅛ col.

"Roberts' *Heat and Thermodynamics* was first published in Blackie's series . . . over thirty years ago. It is a well known and greatly respected textbook and new additions [sic] have appeared from time to time . . . [Dr. Miller] has now prepared a fifth edition in which as he says in the preface 'the aim has been to take account of all work which was published up to June 1958. In a few instances it has been possible to include results which have been published by mid-1959'. The publishers are to be congratulated on a standard text produced in immaculate form." *G. K. T. C.*

Ryder, John D.

Electronic engineering principles. Ed.3. 428p. 1961. Prentice-Hall, Englewood Cliffs, N. J., $12.65.

Electronic industries, March 1961, p.74. ⅛ col.

"In the 3rd edition, the author has accomplished an especially important innovation: the combination and integration of transistor theory. For the first time, readers learn basic material once only, rather than covering vacuum tube theory, and then redoing the same theory for a transistor. No other book at this level contains this combined treatment of theory that is so much easier for the reader to understand, and save so much time by eliminating duplication of basic material."

Schay, Géza.

Theoretische Grundlagen der Gaschromatographie. 267p. 1960. VEB Deutscher Verlag der Wissenschaften, Berlin, DM 29.80.

Analytical chemistry, March 1961, p.86 A. 1¼ col.

"Schay . . . has attempted to treat systematically and more broadly the theoretical, physical-chemical relationships of gas chromatography. Simultaneously, he has not confined his treatise to theoretical matters, but has chosen to present enough of the technique and applications of gas chromatography to illustrate the connections between theory and practice. Indeed, he proposes the book should serve as a practical guide to gas chromatography, though in a lesser degree than related monographs. It appears that the author has accomplished each of his stated purposes, with the result that the book is of even greater interest to analytical chemists than its title would suggest." *I. Dvoretzky.*

Schmidt, Ernst.

Einführung in die Technische Thermodynamik. Ed.8. 543p. 1960. Springer, Berlin, DM 33.

Engineering, Feb. 17, 1961, p.263. ⅜ col. including other reviews.

"The author of . . . [this book] which is the textbook most widely used in Germany for teaching thermodynamics to engineering students, has worked hard to keep it up to date. The eighth edition for example contains a new section on the plasma state, and an extension to the steam tables. Nevertheless the wrinkles of age are not so easily covered (the first edition came out in 1936). Though it is still extremely valuable, the book no longer compares favourably in rigour, style and teachability with its newer American and British rivals." *D. B. Spalding.*

Schure, Alexander.

Basic transistors. 152p. 1961. John F. Rider, New York, $3.95 unbound.

Missiles and rockets, March 6, 1961, p.44. ⅛ col.

"A comprehensive, but basic, coverage of the transistor: what it is, what it's made of, its unique characteristics, and how it differs from the vacuum tube . . . Opens with a discussion of atoms and semiconductors and then analyzes the basic p-n junction diode. Basic transistor circuits and their action are described and analyzed. Coverage includes transistor biasing, transistor characteristics, conventional and power transistors, amplifiers and oscillators, and tetrode units. Review questions are included at the end of each section."

Schure, Alexander.

Semiconductors and transistors. 144p. John F. Rider, New York, $2.90 unbound.

Missiles and rockets, March 6, 1961, p.44. ¼ col.

"Discusses and evaluates the theory and characteristics of semiconductors and transistors. Coverage includes the basics of atomic structure, quantum theory, conductors, insulators, and semiconductors. Conduction by holes, semiconductors with impurities, and the semiconductor rectifier are analyzed. The p-n junction under equilibrium conditions and in reverse and forward bias, diode tubes . . . and an extension of p-n junction theory into the transistor are covered. Considerable attention is given to basic design procedures in tran-

sistor amplifiers. Review questions are included at the end of each chapter."

Scott, Ronald E.

Linear circuits. 2 pts. 928p. 1960. Addison-Wesley, Reading, Mass., $6.75 each.

Machine design, Feb. 16, 1961, p.254. ⅛ col.

"Part I deals with fundamental laws of electric-circuit theory, elements of network topology, mesh currents and node voltages, and methods for solving one-terminal-pair and two-terminal-pair problems. Also covered are transients in simple circuits, signal analysis in time domain, and elements of convolution theory. Part 2 covers steady-state ac-circuit theory, and Fourier and Laplace transforms. Sharp distinction is made between time-domain circuits and frequency-domain circuits in presenting steady-state ac-network theory. Also, much attention is given to techniques of vector (phasor) algebra because of their importance in analyzing electrical circuits."

Shankland, R. S.

Atomic and nuclear physics. Ed.2. 665p. 1960. Macmillan, New York, $8.75.

American journal of physics, March 1961, p.213. ⅜ col.

"The new second edition . . . is able to include very recent results (e.g., Van Allen belts, parity nonconservation in muon decay), and students will be pleasantly surprised to find accurate and clear discussions of topics which they have only recently met for the first time in the newspaper . . . Includes everything that one expects to find. In addition, there is an unexpected 50 pages on reactors, an unusual feature that will recommend this book for courses aimed at nuclear engineering students . . . I am sorry to report that there are more misprints than one expects to find in a second edition." *Ward Whaling.*

Shapley, Harlow, ed.

Source book in astronomy, 1900-1950. 423p. 1960. Harvard Univ. Press, Cambridge, Mass., $10.

New scientist, Feb. 9, 1961, p.351. 1 col. including another review.

"Contains 69 selections, from the research papers of leading astronomers, representing the principal developments in observation and theory. It is not surprising that about 60 per cent of these selections come from American astronomers . . . The intention of the editor has been to select papers in which, as far as possible, mathematical formulae and the highly technical language of spectroscopy are absent. On the whole he has succeeded well, and the book ought to be a mine of information to the non-specialist reader and a source of inspiration to the present-day astronomer." *W. M. Smart.*

Science, March 10, 1961, p.696. 1 col.

"The 69 papers deal with instrumentation, the sun, the planets, stellar motions, spectra, variability, structure and evolution, spectrum-luminosity relationships, interstellar phenomena, galaxies, relativity and cosmogony, and surveys of astrophysical progress . . . This book bears the imprint of Shapley's personality in the well-written introductions to each of the 13 divisions and in the choice of papers . . . Enthusiastically recommended to all students of astronomy." *John B. Irwin.*

Sky and telescope, March 1961, p.165, 167. 2 col.

"Because of the two types of articles [original contributions and review articles] that constitute this volume, an easily understood selection is frequently followed by one of comparative difficulty. This problem doesn't matter too much, since many readers will keep the book for reference purposes and few will read it from beginning to end. Nevertheless, it would have helped to have the source identified on the same page as the beginning of each article (instead of being placed in the long list at the end . . .). And a few statements should have been made concerning the nature of the selection and its relation to the original discovery . . . Considering the scope of the source book and its inherent restrictions, we must thank Dr. Shapley for so boldly attacking this not uncontroversial task." *Owen Gingerich.*

Sheaffer, John Richard.

Flood proofing. 198p. 1960. Univ. of Chicago Press, Chicago, $4 unbound. (Research paper, no.65.)

Midwest engineer, Feb. 1961, p.23. ½ col.

"Describes several available adjustments and measures to render buildings, contents, and ground less vulnerable to flood. Different elements in a flood-proofing program are described . . . The primary objective of this study is to examine the possible role of flood proofing in a comprehensive flood damage reduction program. Included in the numerous discussions are roadbed protection, deliberate flooding, utilities service, tax write-off, flood insurance, emergency measures, appraisal methods and cost of restoration." *W. L. R.*

Siff, Elliott J., & **Emmerich,** C. L.

An engineering approach to gyroscopic instruments. 120p. 1960. Speller, New York, $7.50.

Electronic industries, March 1961, p.74. ⅛ col.

"Presents pertinent characteristics of gyroscopes. Starting out from a few special cases which are easily understood, sufficient mathematical formulation is introduced to arrive at quantitative relations that can be applied to new gyroscopic problems. These principles are then applied to the basic gyro configurations that form the foundation of practically all present-day gyroscopic instruments."

Missiles and rockets, March 6, 1961, p.44. ⅛ col.

"Intended to fill the gap between the most elementary ad hoc explanations of gyroscopic effects and the complicated purely mathematic derivations associated with gyroscopic motion . . . Begins with a basic description of gyro characteristics and, with a minimum of mathematics, shows the design engineer how to apply these characteristics to new gyro problems . . . Attempts to strip some of the mystery from gyro design with relatively simple explanations of gyroscopics, Coriolis accelerations, and Schuler tuning. Finally, it describes some of the newest exotic designs—air bearings, electrostatic and electromagnetic suspension, vibrating gyros, and particle (nuclear spin) gyros —as well as many current applications."

Simpson, P. G.

Induction heating; coil and system design. 308p. 1960. McGraw, New York, $11.50.

Product engineering, Feb. 20, 1961, p.106. ¼ col.

"The practical part of this book tells how to get the most from induction heating . . . Describes low-frequency heating, metal-joining and annealing at high frequencies and how to surface-harden steel to accurate case depths. Coil designs are shown for typical applications. In addition, the book gives information on heat flow in induction-heated parts, selection of frequency for different part sizes and applications and choice of automatic controls. The curves and nomograms included are helpful when solving design problems related to induction heating."

Singer, F., & German, W. L.

Ceramic glazes. Ed.2. 112p. 1960. Borax Consolidated, London, unbound.

Chemical age, Feb. 18, 1961, p.301. ⅛ col.

"A complete revision . . . of Singer's previous book of the same title. Some material covered in Singer's 'Low Solubility Glazes' has also been included. The author has written for potters and students and teachers of pottery. Consequently there is very little about the fundamental chemistry and physics of glazes . . . For the technician rather than the technologist . . . Should prove very useful. The classification of glazes is considered first, then the raw materials, the preparation of a glaze and its application and its melting. The major classes of glaze are then treated . . . Finally, the author considers glaze fit, defects, testing and the effect of glazing on mechanical strength . . . A wealth of material is attractively presented in a small compass."

Singh, Lal Behari.

Mango; botany, cultivation, and utilization. 420p. 1960. Interscience Publishers, New York, $13.25.

New scientist, Feb. 2, 1961, p.287. ¾ col.

"The author deals competently with the origin, history and present distribution of the crop, and its botany and genetics; but is perhaps less at home in discussing periodicity in cropping and the nature of soils. His description of some better-known cultivated varieties is accompanied by a welcome list of characters useful in distinguishing one from another, the first step towards a classification. He is at his best in describing the practical measures of propagation and cultivation, and to these he adds an account of diseases and pests against which action may be necessary . . . An account of the mango, more complete than any hitherto available. A word of praise is due to the artist for his excellent text-figures." *T. A. Russell.*

Society of Motion Picture and Television Engineers.

Instrumentation and highspeed photography. 187p. The Society, 55 W. 42nd St., New York, $4 unbound.

Product engineering, March 6, 1961, p.74. ¼ col.

"Compilation of papers reprinted from the SMPTE Journal. Subjects span the entire field of high-speed photography: light sources, optics and visibility studies, cameras and accessories, properties and uses of cathode-ray tubes, television systems in instrumentation, very high-speed systems, processing and processing machines, and applications in military and industrial testing. In addition to the 43 papers, the book includes abstracts of the papers in French and German, and concludes with a cumulative index of all six volumes in Series I."

Soohoo, Ronald F.

Theory and application of ferrites. 280p. 1960. Prentice-Hall, Englewood Cliffs, N. J., $12.

Radio-electronics, April 1961, p.104. ¼ col. including another review.

"A comprehensive self-study by junior physicists and engineers . . . Covers properties, measurements, effect, at and below microwaves. The author-physicist uses physical reasoning mainly and includes graphs, illustrations and problems. Part 1 discusses theory. Part 2 discusses applications, many of them in detail."

Steinberg, William B., & Ford, W. B.

Electricity and electronics; basic. Ed.2. 262p. 1961. American Technical Soc., Chicago, $4.50.

Electronics world, April 1961, p.103. ⅛ col.

"The explanations of basic theory and simple applications are straightforward and clear and the many photographs and drawings are carefully chosen and executed. Review questions are included. The main sections . . . consist of 'this electrical and electronic age,' magnetism, basic circuits, 'electricity for everyday living,' communications, basic formulas, standard symbols, soldering hints, and supplementary projects for the trainee to work on."

Power engineering, March 1961, p.86. ⅛ col.

"Will do much to encourage young students to consider seriously the wonderful opportunities in this dynamic field. Laymen will add to their basic knowledge about electricity and electronics — facts which they never before troubled to look up for fear of becoming entangled in highly technical jargon . . . The first edition . . . ran through four printings and won wide acceptance in the industrial arts and by educators in vocational training schools, technical institutes, and adult training courses. This updated version strives to make the instructional method of the first edition even more effective. New material is included on transistor fundamentals and silicon rectifiers."

Steiner, H., ed.

Introduction to petroleum chemicals. 194p. 1961. Pergamon, New York, $8.

Chemical trade journal and chemical engineer, Feb. 10, 1961, p.311. ⅛ col.

"During the autumn and winter of 1959 a series of well-attended lectures on the petroleum cehmical [sic] industries was given at the Manchester College of Science and Technology . . . The present book which is based upon these lectures makes the information available to a wider public. The lectures were all by well-known authorities and although the depth and nature of treatment varies somewhat from author to author the whole book presents a

very adequate general picture of the industry . . . Can be confidently recommended to those possessing adequate initial chemical knowledge and desirous of obtaining an authoritative general account of the methods and products of the industry."

Stephenson, Reginald J.
Mechanics and properties of matter. Ed.2. 367p. 1960. Wiley, New York, $7.50.

American journal of physics, March 1961, p.213. 1½ col.

"The marks of a good textbook are clarity, conciseness, and comprehensiveness. On each of these counts, this excellent treatment of intermediate mechanics will be rated highly by its users, both in the classroom and in the reference library . . . Presents a series of subjects designed to prepare physicists for advanced studies, and to train technical students thoroughly in the area of fundamental concepts and operations. To the original group of subjects, the second edition adds valuable discussion of the energy integral, normal modes of oscillation of coupled systems, and an introduction to the use of Lagrange's equations. The clarity of its illustrations, the logic of its explanation, and the forthrightness of its style will recommend the book to students as one of the valuable texts to be retained for reference use throughout their graduate programs." *M. S. McCay.*

Physics today, March 1961, p.66. ½ col.

"Newtonian mechanics forms the basis for a large portion of classical physics, and engineering, and this book presents and develops the connection at the undergraduate level . . . All the standard topics are clearly discussed, including Newton's laws, gravitational attraction, relative motion, and elliptic orbits for particle motion; rigid mechanics; oscillations of systems of particles and elastic substances; and statics and elementary hydrodynamics. There are a number of examples . . . and the general treatment encourages the reader to work out the numerous examples at the end of the various chapters . . . Presentation is carried out in such a way that more advanced study of classical mechanics will not require a complete reorientation of the student, and the book should prove useful to both science and engineering undergraduates." *T. Teichmann.*

Stout, Melville Bigham.
Basic electrical measurements. Ed.2. 571p. 1960. Prentice-Hall, Englewood Cliffs, N. J., $11.65.

STWP review, April 1961, p.33. ¼ col.

"A carefully written, easily understood description of all the fundamentals necessary to make electrical measurements. Professor Stout . . . has included a history of the development of electrical units, an excellent review of statistical methods used to treat experimental data, and a brief chapter on some short cuts in making laboratory computations. All these are supplementary to the main theme of the text, which is an exposition of the techniques and equipment used in making various types of electrical measurements. These techniques are clearly explained and well illustrated with examples but they are directed at the engineer or, more precisely, the engineering student, for the book is an electrical engineering textbook." *Bert Helfinstein.*

Taylor, Philip Lester.
Servomechanisms. 417p. 1960. Longmans, New York, $8.

British communications & electronics, March 1961, p.212. 1 col.

"Previous knowledge of the subject of closed-loop control systems is not taken for granted and the student is taken through it from the simplest beginnings to quite complex ideas at a steady but digestible pace, the style of writing is direct and clear and the text is illustrated throughout with diagrams which are conspicuous for their clarity and lack of unnecessary detail." *H. M. Gale.*

Electronic engineering, March 1961, p.181. 1 col.

"Mainly about servomechanism components; d.c. machines; rotary amplifiers; a.c. systems; motors both electric and hydraulic. It is only in the concluding 100 pages concerned with analysis of systems . . . A book with an individual approach to servomechanisms. While some of it constitutes the standard text the author has clearly been actively engaged in the practical aspects of the work and his examples are well chosen and his commentary based on experience. Although other books have included 'Servomechanisms' in their title none have been so single mindedly or exhaustively about servomechanisms." *J. H. Westcott.*

Engineering, Feb. 17, 1961, p.262. 2⅛ col. including another review.

"Any student or practitioner of the art of automatic control who already has some knowledge of what the subject is about must find . . . [this] book immensely stimulating . . . Mr. Taylor has written a book which most people interested in automatic control will want to have an their shelves, and which can be recommended with confidence to students as a buttress to their notes, and a source of inspiration later." *D. B. Welbourn.*

Journal of the Institution of Electrical Engineers, Jan. 1961, p.46. ⅛ col.

"For years the serious student of closed-loop systems has been compelled to buy a number of works to cover his subject. In this one the author has gathered together the essential information in a logical manner. No lecturer concerned with teaching the topic can afford to miss this text . . . A few omissions are inevitable in this broad sphere, and these are covered by suitable references to other volumes." *A. Asbury.*

Thomson, William T.
Laplace transformation. Ed.2. 256p. 1960. Prentice-Hall, Englewood Cliffs, N. J., $10.

Electronic industries, March 1961, p.78. ⅝ col.

"Long a model for its clear and precise description of the Laplace transformation, this new edition expands its coverage to include applications in many engineering fields—electrical, dynamical, structural, and servo-mechanical . . . Brings the procedure and utility of the Laplace transformation into sharp focus. From the introductory presentation of the basic techniques through the more advanced problems, the reader will gain a working knowledge of its essentials."

Truitt, Robert Wesley.
Fundamentals of aerodynamic heating. 257p. 1960. Ronald, New York, $10.

ARS journal, Feb. 1961, p.272. ¼ col.

"Based on a course at the senior-graduate level conducted by the author . . . Intended also for practicing engineers, physicists and mathematicians working in the missile field, especially those who have not had the benefit of a formal course in boundary layer theory and heat transfer."

Truitt, Thomas D., **& Rogers,** A. E.
Basics of analog computers. 400p. 1960. John F. Rider, New York, $12.50.

Control engineering, March 1961, p.217. ¼ col.

"Like its 'pictured text' predecessor on digital computers, this book assumes little previous knowledge on the part of the reader. The first section manages to explain such things as basic mechanics and calculus while drilling home what an analog is, how analog devices function, and why certain problems can be solved better on an analog computer than a digital one. After brief looks at passive element computers, mechanical and electromechanical analog computers, the ac analog computer, and the digital differential analyzer part two settles down to study the building blocks of the general purpose dc analog computer. Part three covers programming and applications of the same machine and ends with a glossary of terms." *M. P. S.*

Electronic technician, March 1961, p.82. ¼ col.

"A three-volume text in one binding outlines the concepts, components, and applications of analog computers . . . More than 400 drawings are effectively employed to illustrate the subject matter which is written in simple easy-to-understand language. Questions appear at the end of each chapter and may be used as a guide to self-study progress. Recommended to any technician interested in analog computers."

Electronics world, April 1961, p.102. ¾ col.

"The reader with no previous knowledge of this subject should have little or no difficulty in learning a good deal from this book. The reader with some knowledge will find it a concise, easy-to-read review which should consolidate, and perhaps extend, his grasp of the field. Maintenance technicians and computer programmers should find it particularly interesting. Review questions and a glossary are provided."

Product engineering, March 6, 1961, p.74. ⅜ col.

"Though aimed at a reader without much technical background, the design engineer will still find this a highly readable introduction to these computers, how they work and what they can do. Like some other Rider technical books, it uses numerous pictures and sketches to illustrate the main points, much as an instructor uses a blackboard . . . The frequent excursions into the fundamentals are more often annoying than helpful . . . The authors feel obliged to explain such things as analogs, integration and vacuum tubes . . . Not sufficiently detailed to help you with a complex design problem, but there's enough here to tell you whether, and how, it might be solved." *C. J. L.*

Vickery, R. C.
Analytical chemistry of the rare earths. 139p. 1961. Pergamon, New York, $6.50.

Chemical age, Feb. 18, 1961, p.301. ⅜ col.

"It is claimed by the author that this . . . is the first of its kind devoted specifically to the detection and estimation of the lanthanides . . . In terms of size this book can be considered expensive but those who are concerned with the analysis of these elements will find it money well spent. Furthermore those who teach advanced methods of analysis, especially with the aid of spectrometers, will find it will initiate a number of profitable exercises and techniques."

Vickery, R. C.
Chemistry of yttrium and scandium. 123p. 1960. Pergamon, New York, $6.50. (International series of monographs on inorganic chemistry, v.2.)

American scientist, March 1961, p.70A, 72A. 1 col.

"The first concise but critical survey of the chemistry of these two closely related 'cousins' of the more familiar lanthanons. The number of pages reflects the scarcity of available data . . . This pioneering work can be compared to Yost, Russell, and Garner's 'The Rare-Earth Elements and Their Compounds' . . . and like the latter, it probably will become obsolete, partly because of the interest and subsequent research which it will undoubtedly generate . . . Until now most of our knowledge of ytterium and scandium has been a by-product of research on the lanthanons. Perhaps the advent of this book will further their study as an end in itself." *George B. Kaufman.*

Nature, Feb. 4, 1961, p.345. ⅜ col.

"If the purpose of a monograph is to present the reader with a concise, critical and systematically presented résumé of knowledge in a particular field, and to spare him so far as possible the need to refer to the original literature, this book is unsuccessful . . . Except at the level of detail and completeness found in Gmelin's *Handbuch,* it is debatable whether the elements justify a book to themselves . . . In matters that touch on Dr. Vickery's extensive practical experience of rare-earth chemistry . . . the reader is overwhelmed with facts and details of procedure. Other chapters that should clearly set out the chemical and physical properties, crystal structures and thermodynamic data for their compounds are sketchy, confusing in arrangement and, in parts, apparently ill digested . . . The book has a limited usefulness." *J. S. Anderson.*

Ward, Dennis.
Russian for scientists. 204p. 1960. Univ. of London Press, London, 15s.

Discovery, Feb. 1961. p.79. ⅝ col.

"Intended to be used either with or without the assistance of a teacher and was designed to help scientists read technical and scientific Russian literature within the limited field of their own special study and possibly one or two adjacent fields. The size and scope . . . is limited and the students' work is considerably restricted . . . The 'one-way' exercises in Russian-English translation are very good, but only two chapters contain short and very good continuous texts. A greater number of similar texts in other chapters would greatly have enriched the book . . . For a limited purpose, this book could well be used as it is, or in conjunction with other textbooks or technical magazines." *A. Blum.*

Watkins, S. B. See **Cremer,** H. W., & **Watkins,** S. B., ed.

Webb, Herbert Anthony, & **Ashwell,** D. G.

Mathematical tool-kit for engineers. Ed.2. 116p. 1960. Longmans, New York, 15s.

Engineer, March 10, 1961, p.377. ⅜ col.

"A comprehensive, useful and interesting book . . . It is, of course, possible to suggest other topics that might have been included; but it must be remembered that the book is described as a 'tool kit' and not as a 'workshop.' It is inexpensive and admirable for its purpose and it should find a widespread use on the engineer's bench and desk."

Engineering, Feb. 10, 1961, p.232. 1 col.

"The percipient person who reviewed the first edition . . . in these columns said 'that every student of engineering should possess and study' it. I can only repeat this comment, and add a gloss. This new edition . . . contains four additional chapters on complex numbers, Macaulay methods, Laplace Transform, and theory of errors, together with an index." *D. B. Welbourn.*

Structural engineer, Feb. 1961, p.61. ⅛ col.

"Compiled for the use of engineering students and practising engineers to help them in the application of mathematics to physical problems. Information is given on a number of useful methods and techniques and many examples are worked in the text and are given at the end of the chapters. The first edition contained chapters on differential equations, uses of the operator D, methods of evaluating integrals, the calculus of variations, Bessel functions, the Fourier series and contour integration. The second edition has been much enlarged and includes a chapter on Macaulay methods which discusses a little-known technique for discontinuous differential equations, and chapters on complex numbers, the Laplace transform and the theory of errors."

Weichmann, Helmut, ed.

Physics of precipitation. 435p. 1960. American Geophysical Union, Washington, D. C., $12.50. (Geophysical monograph, no.5.)

Economic geology, Jan.-Feb. 1961, p.228. ⅓ p.

"In June, 1959, the Second Woods Hole Conference on Cloud Physics was devoted to the *Physics of Precipitation,* and this volume contains the papers presented there, and the ensuing discussions. Some sixty authors participated in the presentation of fifty papers . . . The individual papers . . . cover almost every field related to precipitation. Edited discussions follow each paper . . . A great contribution to the knowledge of precipitation, bringing together as it does authoritative information on the many and diverse phases of the problems of precipitation . . . Will serve as an outstanding reference to all students of meteorology and geology."

Williams, E. M., & **Young,** F. J.

Electrical engineering problems. 287p. 1960. McGraw, New York, $7.75.

Proceedings of the IRE, March 1961, p.690. ⅝ col.

"A rather unusual book, and is, as the name suggests, a collection of engineering problems . . . Not a textbook in any conventional sense of the term . . . The authors make no effort to relate the problems to particular courses. Nor do they indicate the extent to which the work supplements or replaces laboratory work of the conventional types . . . The book will be a very valuable one to electrical engineering educators. It can serve in providing direction in the establishment of laboratory-centered workshops to supplement analytic courses . . . Can also provide a valuable source of interesting and instructive problems. For the non-educator, it provides interesting and challenging reading, and can provide many problems for pastime and pleasure." *Samuel Seely.*

Wilson, D. W., ed.

Proceedings of the international symposium on microchemistry. 583p. 1960. Pergamon, New York, $15.

Journal of chemical education, Feb. 1961, p.A118, A121. 1 col.

"It is difficult to single out individual papers for comment in the space available. The papers on methods and techniques will be valuable to all analytical chemists as concise summaries of current practise. Brief reviews of theoretical principles and key references are given. This summary of the work and reflections of a distinguished group of chemists is recommended to all analytical chemists. The only regret is that it takes two years to make the material available to those who were not fortunate enough to attend this stimulating Symposium." *Robert L. Pecsok.*

Zbar, Paul B.

Industrial electronics laboratory manual for electronics technicians. 201p. 1960. McGraw, New York, $5.

Electronic technician, March 1961, p.82. ⅛ col.

"The varied electronic subjects grouped under the heading 'industrial electronics' are covered as building blocks. For example, Job 1 (of 39 experiments) covers 'Characteristics Of A Gaseous Rectifier,' while Job 2 is 'Thyratron Characteritics.' Thus, many major industrial groups are covered, including: relays, saturable reactors, motor control, radio control, computers, syncros, etc. The theory behind each experiment offers readers an excellent background in industrial electronics."

Radio-electronics, March 1961, p.122. ⅛ col.

"The latest in the series sponsored by the Electronic Industries Association and the New York Trade School . . . Divided into 39 jobs, beginning with the characteristics of a gaseous rectifier and running through thyratrons, phototubes, timing circuits and time-delay relays, three-phase rectifiers, motor control and other types of controls to computers. Six jobs deal with computers and counters. The last three cover synchros and servomechanisms . . . Fills a gap in the literature. Far too little has been written on industrial electronics."